HERBACEOUS PLANTS.

	Deg.		Deg.		Deg.
China Aster	28·30	Marigold	38·40	Lupin	40·44
Antirrhinum	28·30	Rose Willow	30·35	Phlox	40·48
Ten-week Stock	35·38	Zinnia	23·25	Poppy	20·25
Xeranthemum lucidum	18·20	Fuchsia	60	Verbena	35·38
Solidago Virgaurea	30	Valerian	25	Columbine	25·28
Clarkia elegans	36·40	Salvia (red)	35	Mallow	36·38
Queen of the Meadow	30·35	Pentstemon	38	Alonsoa	38·40
Wild Geranium	50·64				

In the leaves of many trees the small veins come off at a wider angle than the large veins. But it may be observed that in several trees, the small branches come off at a wider angle than the large branches, as in the oak for instance. What woodmen in this part of the country call *spray*, seems in the tree to correspond to the small veins in the leaf.

4. "On Fossil Woods from Antigua and Australia," by Mr. R. Bryson. The author made some remarks on the process of silicification, and pointed out the difference of appearance presented by the woods. Some were completely opalized and hard throughout; others had portions either external or internal which were less completely silicified, and in a friable state.

MISCELLANEOUS.

Notice of the Occurrence of the Black Tern, Sterna nigra, *Linn., near Coldstream.* By JOHN ALEXANDER SMITH, M.D.*

THE specimen of the black tern, *Sterna nigra*, Linn., which I now exhibit to the Society was killed in the beginning of July last, near Wark boat-house on the river Tweed, about two miles or so above the town of Coldstream; the person who shot it informed me that it was flying in company with several other birds apparently of the same kind, but the bird itself was quite unknown to him. It is easily distinguished from the other terns by the dark character of its plumage, and its tail being only slightly forked; some naturalists indeed, from this last character, and other slighter peculiarities, are inclined to separate it into a distinct genus. In this individual the bill, head and neck are black; the upper parts of the body and tail of a dingy bluish gray, very slightly tinged with brown; outer web of first quill nearly black, rest of quills grayish black, their shafts like those of the tail-feathers white; throat, breast, sides and abdomen of a grayish black; lower wing-coverts white, with a slight brownish tinge; vent and lower tail-coverts white; legs and feet dark reddish brown, and feet less webbed than other terns. The bird is about 9½ inches in length, and the length of wing from carpal joint to extremity of first primary is about 8½ inches. The male and female are said to be alike in their plumage; and the young have the forehead, cheeks, throat and whole of the under surface pure white, and the colours of the upper parts mixed with brown. Though this, therefore, seems to be an adult bird, still the colours are not so pure and dark as in other specimens which I have examined from the south of England; and I am inclined to consider it as an adult that has just assumed the mature plumage. Like the other terns it is a summer visitor to Britain, and unlike them it frequents rivers, freshwater ponds, and marshes, in preference to the sea-coast, breeding among the grass and rushes of their borders, and feeding principally on the varied insect-food which abounds there.

---

* Read to the Royal Physical Society of Edinburgh, Dec. 3, 1851.

It is described as being common on the marshes of Holland and other northern parts of Europe, extending even as far as the Arctic circle; but in Britain it is found principally in the south-eastern districts of England, where it is now by no means so common as it formerly was. It "*is a rare bird in the north of England, and is not found in Scotland.*" (Yarrell's Brit. Birds.) Jardine and MacGillivray both allude to it *as not having been met with in Scotland*; so that, as far as I am aware, this is the first specimen which has been described as occurring so far to the north in Britain; and I am inclined of course to claim it for Scotland, as in pursuit of its insect prey it hunted over both sides of the river Tweed, which there forms the southern boundary of our ancient northern kingdom!

P.S.—I was informed by a friend at the meeting of the Society, that a specimen of this bird had been shot some years ago in East Lothian; so there can be no doubt of its occurrence at least occasionally in Scotland.

On the Circulation of the Blood, and Nutrition in Insects.
By M. Emile Blanchard.

It has long been known that silkworms fed upon leaves powdered with madder produced rose-coloured cocoons, whilst those fed upon leaves sprinkled with indigo produced blue cocoons; but these larvæ had never been examined anatomically. At the scientific congress held at Genoa a few years since, however, Prof. Alessandrini of Bologna stated that he had detected the blue colour in the tracheæ of some silkworms which had been fed on leaves powdered with indigo. He brought forward this fact as being unable to explain it, requesting his colleagues to repeat the experiment. M. Bassi, having undertaken this work, announced the following year, that silkworms which had eaten coloured substances certainly exhibited the same colour in their tracheæ, but that the colour was not in the interior of the respiratory tubes, but rather between the membranes forming their walls.

When I became acquainted with these inquiries, they appeared to me to be of too much importance to be allowed to pass without repetition. I therefore took a quantity of caterpillars, particularly those of the peacock butterfly (*Vanessa Io*), and placed them in two boxes, furnished with leaves, powdered, in the one with madder, in the other with indigo. After continuing this diet for several days, I dissected some of my caterpillars, and was convinced that some of them presented rose-coloured, and others blue tracheæ; the viscera and the muscles had preserved their natural colour. This was M. Bassi's experiment, and I had verified his result; but I wished to follow out this experiment in a more complete manner. Many caterpillars have the blood of a slight greenish tint, or of a brownish green, which appears in some respects unfavourable for showing the effects of coloured substances introduced by the alimentary canal. So, although I did not doubt in the least that in my caterpillars the blood was charged with the colour of the indigo or madder, and that this tint only appeared in the tracheæ because there alone the liquid was imprisoned, I thought it better to choose for my further experiments insects in which the blood is colourless and of which the white integuments would render observation more easy. The larvæ of the cockchafer (*Melolontha vulgaris*) appeared to me to fulfill these conditions pretty well. I placed several of these in some earth filled with vegetable matter and mixed partly with madder and partly with indigo. At the end of several days, the blood of those which had eaten madder had acquired a rosy tint, although this colour was but faint, the digestive juices having acted less powerfully upon this substance in these insects than in the larvæ of Lepidoptera; but the blood of those which had eaten indigo had acquired a very marked blue tint, this colour being perfectly distinct through the integuments of the insects. It was evident immediately that the dorsal vessel was filled with perfectly blue blood, and the nutritious fluid was distinctly visible in all the cavities of the body, coloured in a similar manner.

When an insect has been subjected to an indigo diet only for a few days, the blood becomes perceptibly blue; this is particularly manifest in those parts where it is present in considerable quantity, as in the abdominal cavity and even in the dorsal vessel; but in the space between the membranes of the tracheæ where it can only form a very thin stratum, the tint is still very faint. By continuing the same diet, the blood becomes more and more coloured, and then shows itself throughout in the most distinct manner; but still, neither the muscles nor the viscera become tinged, these parts retaining their usual whiteness. The tracheæ constantly present the deepest tint at their base, becoming gradually paler to the extremity; this is readily explained by the gradual diminution of the quantity of fluid interposed between the trachean membranes.

Thus the passage of the blood between the walls of the tracheæ, as well as the entire course of the circulation, as I had proved by means of injections, made either through the dorsal vessel or through one of the large cavities of the body into which the blood flows, becomes as evident as possible; for it is the blood itself, in the living insect, which, charged with colouring matter, renders the facts visible to every one.

It is clear that observations on these processes of alimentation will soon leave not the least doubt on the course of the blood in insects; for perhaps no demonstration can render the facts more evident, than that furnished by the experiments that I have just detailed. We see clearly that nutritive matters pass into the blood contained in the abdominal cavity by transuding through the walls of the intestinal canal. Through the integuments of the larvæ of *Melolontha*, of which the blood has been charged with colouring matter, we may perceive, without difficulty, that the nutritive fluid bathes the viscera, that there exists on each side of the body a tolerably distinctly circumscribed current, and that the blood returns to the heart through the transverse canals which I have formerly described and which run through the grooves formed by the junction of the segments, where they are bounded by a certain quantity of cellular tissue. And here I have been able to perceive that these canals are in communication with the pericardiac chamber, from which the blood re-enters the heart, as in the Arachnida and Crustacea.—*Comptes Rendus*, Oct. 6, 1851.

ON THE OCCURRENCE OF EOLIS LANDSBURGII.

To the Editors of the Annals of Natural History.

GENTLEMEN,

The rare and beautiful *Eolis Landsburgii* of Messrs. Alder and Hancock's Monograph on the Nudibranchiata, has lately occurred to me on the Devonshire coast; and as two specimens only, I believe, have been previously discovered, and those in different parts of the kingdom, the capture may perhaps be worth a record in the 'Annals.' A single specimen of this exquisite little mollusk was taken in a rock-pool near Exmouth. Its bright amethystine colour at once attracted my notice. It appeared like a brilliant little gem on the dark foliage of the weed.

In the course of two or three days it deposited on the side of the bottle in which it was confined a delicate coil of *ova*.

The specimen from which the description and figure in the 'British Nudibranchiata' were taken, was obtained on the Ayrshire coast, and Mr. Alder informs me that a second has since been procured on the Cheshire shore.

I remain, Gentlemen, your obedient servant,
Exeter. THOMAS HINCKS.

DISCOVERY OF THE REMAINS OF SEVERAL ORDERS OF REPTILES IN THE OLD RED SANDSTONE AND SHALES OF SCOTLAND.

At the meeting of the Geological Society on the 17th, a memoir on the discovery of fossil footsteps by Capt. Lambart Brickenden, and of a reptile by Patrick Duff, Esq., and described by Dr. Mantell, was announced for reading; but in consequence of the protracted discussion on a most important paper on Climate by the President, the title only of this communication was read, and the consideration of the novel and highly interesting subject was postponed till the next meeting, January 7. The specimen discovered by Mr. Duff is a small four-footed reptile, not exceeding, when living, 6 or 7 inches, and was exhibited, with drawings illustrative of its anatomy, by Dr. Mantell, to whom Mr. Duff had transmitted it for examination and description. The fossil is a distinct impression of a great part of the skeleton, with a mutilated portion of the cranium ; its general aspect is that of a small land lizard, but its osteological characters are peculiar, exhibiting a blending of true lacertian with batrachian attributes. If the animal prove upon the discovery of bones to be a true lizard, it must have closely resembled the green lizards ; if, on the other hand, it turn out to be an aquatic salamander, it must have been very similar in form, and doubtless in habits, to our Tritons, but with better-formed limbs, and more expanded dorsal and costal regions. Dr. Mantell has named it *Telerpeton*[*] *Elginense,* to indicate its remote antiquity, and the locality whence it was obtained. Dr. Mantell also placed before the Society specimens of fossil ova, hitherto supposed to be eggs of gasteropodous mollusks, from the Lower Devonian shales of Forfarshire. These Dr. Mantell stated he had reason to conclude are unquestionably ova of batrachian reptiles : those in clusters belong to animals of the frog-tribe ; and others that occur singly or in pairs, and often attached to a leaf, resemble those of aquatic salamanders.

Notes on the Habits of the Crustacea of the Antilles.

By Dr. P. DUCHASSAING of Panama.

During his sojourn in the Antilles, Dr. Duchassaing studied the habits of several Crustacea, principally those of the terrestrial crabs. The following facts are extracted from his work.

The *Cardisomata* of Latreille, known at the Antilles under the name of *Land Crabs* or *White Crabs,* are omnivorous, devouring everything they chance to meet with ; they live generally in the muddy ground of the mangrove swamps, where their nourishment consists almost exclusively of the sweet fruit of the corkwood (*Annona palustris*), which grows in quantities in those places. They dig themselves holes in the mud and withdraw into them at the least noise. Those which live in the vicinity of the cemeteries dig burrows which go to the bodies and make these their food. The places of sepulture in the Antilles are thus pierced in all directions by the burrows of these animals. Nevertheless the *Cardisoma carnifex* is much sought after as food in the Antilles ; its flesh is more delicate than that of the *Gecarcini.* Care is taken only to use those for eating which live in the mangrove swamps, far from the burial-places ; these are kept in close places where they are fattened with broken victuals. They are caught with the same trap that is used for taking rats ; this consists of a box with a sliding door, in which a piece of the fruit of the *Annona* is placed as bait, and when the animal touches this, the door falls and it is caught in the box. But the time when their pursuit is most productive is during the heavy rains of the winter, when the swamps are inundated ; the animals then being unable to remain in their holes, withdraw in thousands to the nearest dry places, when they are taken in great quantities, and their flesh is particularly esteemed.

The *Ucæ* of Latreille are also very abundant in the Antilles ; they live in the same localities as the preceding, and in the same manner. They are taken in the same traps and in great quantities, but their flesh has a strong taste, and is only eaten by the negroes.

---

[*] *τῆλε*, procul ; *ἕρπετον*, reptilis.

The *Gecarcini,* frequently called violet crabs, painted crabs, and "*tourlouroux,*" are of numerous species. The *Gecarcinus lateralis* is the most common, and to it the name of "*tourlourou*" properly belongs. It lives in dry woods on the sea-coast, and hides under stones and trunks of trees or in holes; often, as is also the case with *Cardisoma carnifex* and *Uca una,* even under the flooring of houses. It is only esteemed as food at the period of spawning, because then the ovaries are dilated with eggs; and it is only at this period that they are taken, which is so much the more readily done, because then great numbers of them are about in troops.

It is said that the *Gecarcini* as well as the *Cardisoma carnifex* have occasionally poisonous properties; but the flesh of these animals being heavy and the epicures eating sometimes great quantities of them, it is probable that it is generally indigestion that is produced, particularly as these derangements bear a considerable resemblance to some cases of poisoning. It has been pretended that the crabs acquire this venomous property after eating the fruit of the manchineel-tree; but in answer to this it is stated that the fruit of the manchineel is not ripe at the period when the crabs are eaten, and it must be observed that this fruit does not fall to the ground until it has arrived at the extreme of ripeness.

The *Gelasimi* inhabit the most muddy places they can find, where a soft dirt, composed of decomposed leaves, allows them to dig their retreats easily. When these animals are frightened at anything, they retreat towards their burrows, with their large claw raised: they require a great quantity of moisture; for in the event of a long drought, the mud of the swamps becoming dried up, they nearly all die, and so great is their number in some places, that when this is the case the air becomes contaminated by the emanations from their bodies. Their numbers, in fact, are so prodigious, that in some districts one may see spaces of two or three leagues perforated with the burrows of these animals.

The *Sesarma Pisonii* lives on the roots of the mangroves. When it perceives the approach of danger it ascends even to the topmost branches of these trees, or else descends along the roots until it is covered by the water.

The *Grapsus pictus* inhabits rocks on the sea-shore, where it is continually engaged in watching for prey; for this purpose it keeps five or six lines from the surface of the sea, and seizes upon anything that swims past. Its feet are so disposed and covered with asperities, that it runs with great swiftness over the most inclined rocks, and can only be taken by surprise: when every other place of retreat is cut off, it throws itself into the water. This animal changes its skin on the rocks which it inhabits; at that time it is much less active and can be caught more readily. The places inhabited by the *Grapsi* are covered with their brilliant coats.—*Bibl. Univ. de Genève,* 1851, p. 337.

OBITUARY.—MR. SAMUEL VEALL.

Died at Boston, Lincolnshire, on the 17th of August 1851, aged 71 years.

It may be said of him, that in youth, and until his mental powers had become enfeebled by age, he was diligent in the attainment of knowledge. From his early days he was fond of books and experimental science. At a time when philosophy was by no means fashionable, especially about 1808 and 1809, he was amongst the earliest projectors and friends of a Literary and Philosophical Society in Boston, his native town. In connection with this Society, he became Secretary, and delivered lectures on Electricity, Optics, Galvanism, &c., and it is believed continued his efforts so long as he could find coadjutors to act with him. He engaged in those pursuits simply for the improvement of himself and his neighbours.

It may well be presumed, that his Meteorological Journal, which he kept methodically and perseveringly for many years, and communicated to this Magazine from its commencement, has aided in throwing some light upon the laws which govern the changes of the atmosphere, and may have induced others to contribute in like manner to meteorological science.

He was considerate to a fault of those whom he employed in business; and though often injured himself, he was not known to act injuriously towards others. Punctiliously honest, he even made scruples where many individuals esteemed upright would see nothing to blame. He has left a widow and family to revere his memory and imitate his virtues.

METEOROLOGICAL OBSERVATIONS FOR NOV. 1851.

Chiswick.—November 1. Overcast: very fine: clear: frosty. 2. Fine: hail-shower. 3. Hoar-frost: very fine: cloudy: rain. 4. Rain: fine, but cold. 5. Clear and frosty: slight rain at night. 6. Clear and fine: cloudy. 7. Cloudy and cold. 8. Fine: rain. 9. Foggy: fine: rain. 10. Very fine: drizzly at night. 11, 12. Very fine. 13. Foggy. 14. Clear and fine. 15. Frosty: very fine: clear. 16. Frosty: clear and fine: cloudy. 17. Clear and cold: frosty at night. 18. Clear and cold: severe frost at night. 19. Sharp frost: fine: cloudy. 20. Clear and frosty: very clear throughout. 21. Overcast. 22. Cloudy: fine. 23. Frosty: clear and fine: rain at night. 24. Densely clouded: foggy at night. 25. Frosty: very fine. 26. Foggy. 27. Hazy. 28. Frosty: very fine: frosty. 29. Frosty, with fog: fine: foggy. 30. Dense fog.

Mean temperature of the month .... 35°·86
Mean temperature of Nov. 1850 .... 45 ·29
Mean temperature of Nov. for the last twenty-five years ... 43 ·43
Average amount of rain in Nov. .... 2·35 inches.

Boston.—Nov. 1. Fine. 2. Rain: rain early A.M. 3, 4. Fine. 5, 6. Fine: rain P.M. 7. Cloudy. 8. Cloudy: rain P.M. 9, 10. Fine: rain P.M. 11. Foggy. 12—16. Fine. 17. Fine: snow P.M. 18. Fine. 19. Cloudy. 20. Fine. 21. Cloudy: rain P.M. 22. Cloudy: rain A.M. and P.M. 23. Cloudy: rain P.M. 24, 25. Fine. 26. Cloudy. 27. Fine. 28. Cloudy. 29. Fine. 30. Foggy.

Sandwick Manse, Orkney.—Nov. 1, 2. Showers. 3. Snow-showers. 4. Snow-showers: rain. 5. Showers: cloudy. 6. Showers: cloudy: rain. 7. Rain: drizzle. 8. Drizzle. 9. Showers. 10. Bright: showers. 11. Bright: cloudy. 12. Cloudy. 13. Showers: hail-showers. 14. Sleet-showers: rain. 15. Showers: cloudy. 16. Sleet-showers: snow-showers. 17. Hail-showers: cloudy. 18. Cloudy: clear. 19. Cloudy: drops. 20. Bright: rain. 21. Showers: clear: aurora. 22. Bright: cloudy. 23. Cloudy: rain. 24. Clear: frost: aurora. 25. Frost: rain: clear. 26. Showers: fine. 27, 28. Fine: frost: fine. 29. Fine: frost: fine: showers. 30. Fine: frost: fine.